

METHOD AND SYSTEM FOR PATH PROTECTION  
IN A COMMUNICATIONS NETWORK

ABSTRACT OF THE DISCLOSURE

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A system and method for fast and reliable failure notification and accelerated  
5 switchover for path protection in a communications network having several overlapping  
areas of nodes interconnected by communications links is described. Upon a failure  
event involving one of the communications links, a failure message is broadcast  
identifying the failed link, the broadcast being confined within the areas which include  
the failed link. A reliable transmission protocol is provided wherein at one or more of  
10 the nodes, a LAPD protocol unnumbered information frame containing the failure  
message is sent to connected nodes. The failure message is resent in another  
unnumbered information frame after a time interval unless an unnumbered  
acknowledgment frame containing or referencing the failure message is received from  
the connected node. A method of path protection includes establishing plural working  
15 paths through the nodes. For each working path, an associated protection path is  
precalculated. A priority is assigned to each working path and associated protection  
path. A protection path is precalculated for each area through which a particular  
working path traverses. Upon a failure event, working paths that include the failed link  
are switched to their respective protection paths. Higher priority protection paths can  
20 preempt lower priority paths that share at least one link. At each node, linked lists for  
protection path activation, working path deactivation and path preemption are  
implemented upon a failure event.